



Received on March 22, 2013 / Approved on June 6, 2013

Responsible Editor: Leonel Cesar Rodrigues, Ph.D.

Evaluation Process: Double Blind Review

E-ISSN: 2318-9975

DOI: 10.5585/iji.v1i1.6



O RGANIZATIONAL FACTORS AND INTRAPRENEURIAL COMPETENCES

¹Suzete Antonieta Lizote

²Miguel Angel Verdinelli

³Amelia Silveira

ABSTRACT

This study analyzes the relationship between organizational factors and entrepreneurial competencies of coordinators of undergraduate courses in two community universities in Santa Catarina, Brazil. The organizational factors studied were: management support, freedom at work, rewards, and time available and organizational limitations. Eight entrepreneurial competencies were considered; five included in an achievement set, and three in a planning set. The method was quantitative and descriptive, adopting a structured questionnaire as the data collection tool. Factor analysis, canonical analysis, and multiple regression analysis were performed. The results revealed a positive relationship between the constructs. The most relevant competencies were organizational limitations or uncertainty about tasks, and freedom at work, which indicates the importance having clarity about rules and decisions that should exist both at the level of performance expected of the coordinator, and the freedom that they must feel in their work.

Keywords: entrepreneurial competencies; organizational factors; associations.

¹ Doctorate in Administration and Tourism from the University Vale do Itajaí. Professor of the University Vale do Itajaí, Santa Catarina – SC (Brazil). [lizote@univali.br]

² Postdoctoral in Social Sciences from the University of Alicante. Professor of the University Vale do Itajaí, Santa Catarina – SC (Brazil). [nupad@univali.br]

³ Postdoctoral in Administration from the University of São Paulo. Postdoctoral in Information Science of University of Complutense (Madrid). Doctor in Communication Sciences from the University of São Paulo. Professor of the Postgraduate Program in Administration – University Nove de Julho (UNINOVE), São Paulo – SP (Brazil). [ameliasilveira@gmail.com]

1 INTRODUCTION

Managers of many different organizations have realized, over time, that in order to improve organizational performance and adapt quickly to the business environment, organizational factors and entrepreneurial competencies are important institutional factors (Mello, Leão & Paiva Jr., 2006). It is also believed that companies that achieve above average results, compared to their competitors, are those that have individuals among their staff, who create and develop innovative actions (Hashimoto, 2006). These are employees who have entrepreneurial competencies and who, when they receive the appropriate support, stand apart for their achievements. These corporate entrepreneurs see the business as a place where their competencies are developed and manifested in real actions (Lenzi, 2008). They seek to perfect them, and feel personal gratification at being an integral part of the organization.

Therefore, as suggested Birley and Muzyka (2001), sharing the vision of internal processes, beliefs, values, interests, goals, and objectives of an institution with the employees, together with knowledge of external factors, offers opportunities to develop their competitive capabilities. In this context, when the employees of an organization apply the fundamentals of entrepreneurialism, it is known as intra-entrepreneurialism. Which basically is to encourage proactivity and innovation, i.e. anticipating changes in scenarios, needs, and expectations, and implementing ideas that will give the company competitive advantage.

More specifically, when it comes to Institutes of Higher Education (IHE), whose basic inputs are intelligence and knowledge, and where people are simultaneously raw material and instruments of intellectual production, organizational performance is tied to organizational factors and entrepreneurial competencies. IHEs see themselves as reflexive centers of knowledge, with highly trained professionals whose role is to produce and socialize knowledge. These institutions are instruments of renewal and change and, historically, have contributed to advances in culture, science, technology, and social and technical innovation.

They are the ideal place for discussing ideas and ideologies and, also, an intellectual space where organizational factors and entrepreneurial competencies should be the indicators for recognizing success.

According to the model of Moriano et al. (2009), organizational factors may be viewed as having five dimensions: management support (AD), freedom at work (LT), rewards (Rc), time available (TD), and organizational limitations or uncertainty about tasks (IT). At the same time, there are competencies associated with entrepreneurial attitudes that further understanding of the attributes that shape meaningful answers in interactions with internal and external groups. As proposed by Lenzi (2008), these are linked, among others, to eight entrepreneurial competencies: those of the achievement set, which include search for opportunities and initiatives (BOI), calculated risk-taking (CRC), demand for quality and efficiency (EQE), persistence (PER), and commitment (COM); together with those of the planning set, which include search for information (BDI), establishing goals (EDM), and systematic planning and monitoring (PMS).

The increasing competition and demanding requirements create a scenario in which organizational factors and entrepreneurial competencies can represent competitive advantages for IHEs. Bearing in mind that individual competencies allow IHE teachers to recognize and act on opportunities for innovation, assuming the inherent risks, D'Este et al. (2012) state that professors who integrate diverse knowledge into their work, presented from different methodological perspectives, are more likely to develop competencies and to propose innovative visions and applications. It is based on these arguments that the question that this work seeks to answer emerges:

To what extent are organizational factors significantly related to the entrepreneurial competencies of the coordinators of undergraduate courses in IHEs?

More specifically, with a focus on interest, and in order to answer this research question, the investigational hypothesis presented is that organizational factors are positively related to the entrepreneurial competencies of these coordinators.

2 ORGANIZATIONAL FACTORS AND ENTREPRENEURIAL COMPETENCIES

The development of intra-entrepreneurial behavior, according to Moriano et al. (2009), is either favored or restricted by the type of procedures defined by organizations for employees to perform their activities. Hornsby, Kuratko, and Zahra (2002) identify five organizational components that promote this behavior:



1) Management support: it is essential that management accept employees with intra-entrepreneurial behavior, as well as enabling conditions and resources for the development of innovative ideas (Stevenson & Jarillo, 1990, Kuratko et al., 1993). Management, as conceived by Dornelas (2003) and Hisrich and Peters (2004), should ease the way for intra-entrepreneurs to overcome bureaucratic barriers and/or to obtain resources. According to Daft (2002), it reflects the extent to which the managerial structure itself encourages employees to believe that innovation and entrepreneurship are part of everyone's role in the organization.

He also maintains that the conditions that reflect management support are: rapid adoption of employees' ideas; recognition of people who succeed in moving ideas forward; support for small, experimental projects; and allocation of capital to initiate projects.

2) Freedom at work: consists of giving autonomy to employees to make decisions, delegating authority and responsibility to them (Zahra et al., 2002). For Birley and Muzyka (2001), Dornelas (2003), and Cozzi and Arruda (2004), this means the existence of values like respect and confidence in people, encouraging action, and stimulating decentralization of power. Hernandez and Caldas (2001) argue that the autonomy given to employees urges them to find the best solutions for business. Hashimoto (2006) advises that the organizational system must be sufficiently flexible to give autonomy of decision and action to the intra-entrepreneurs of its teams.

3) Rewards: encouraging employees to take on new challenges (Kuratko, Montagno & Hornsby, 1990; Birley & Muzika, 2001, Dornelas, 2003, Kuratko, Hornsby & Bishop, 2005). But to be effective, they must be based on goals, feedback, individual responsibility, and performance-related bonuses. For Marvel et al. (2007), besides being able to provide challenges and increase accountability, the organization may also present the ideas of its intra-entrepreneurial employees to the highest levels of the organizational hierarchy.

4) Time available: encouraging employees to think of new ideas or new products, or improve existing procedures (Covin & Slevin, 1991).

5) Organizational limitations: Moriano et al. (2009) redefined this as uncertainty about tasks, referring to the lack of clear rules and indecision around the level of performance expected of the employee. According to Birley and Muzika (2001), Dornelas (2003), Kuratko, Hornsby, and Bishop (2005), management processes must be open, accessible to all, and frequently reviewed, so that learning can be disseminated throughout the organization. For these authors, lack of strategic direction can inhibit actions that have real impact. According to

Hashimoto (2006) within the intra-entrepreneurial organization, the most important communication is that which flows downwards, from higher management to the other departments. The chosen strategic direction, details of the mission, feedback generated from external information, and institutional changes, originating internally, should all flow from the top down.

In their study of intra-entrepreneurial behavior, Kuratko, Montagno, and Hornsby (1990) conducted an exploratory study using five different constructs: executive management support, rewards and resources available, organizational structure and limitations, propensity for risk, and availability of time. However, empirical analyses performed by the same authors reduced these factors to: management support, organizational structure, and rewards and resources available.

Kuratko and Hodgetts (1995) outline the key steps to creating a work environment that is conducive to intra-entrepreneurial employee behavior:

- a) Set clear goals: these need to be mutually agreed upon by employees and managers so that the specific steps may be achieved;
- b) Create a feedback system and positive reinforcement: the creator-inventors or potential intra-entrepreneurs must be aware that acceptance and rewards exist;
- c) Emphasize individual accountability: confidence and responsibility are key success factors in any innovation program;
- d) Provide rewards (or awards) based on results: the rewards system should praise and encourage people to take risks.

Zahra and Garvis (2000) created the ICE (international corporate entrepreneurship) scale in order to identify the presence of corporate entrepreneurship in subsidiaries of American multinationals. In their study, they found that the companies surveyed had tolerance for high-risk projects; actively sought out challenges instead of merely responding to the competition; emphasized long-range strategic actions instead of small tactical changes; and rewarded calculated risk-taking.

Now, within the scope of this paper, entrepreneurial competencies must be addressed. Some authors have sought, within the theme of entrepreneurial competencies, to create typologies that enable researchers to identify the skills needed to perform their jobs. Among them is the work of Lenzi (2008), which addresses the work developed by Cooley (1990, 1991). Lenzi (2008) proposes ten characteristics of entrepreneurial behavior, also called entrepreneurial competencies, grouped into three sets, as follows:

- 1) Achievement Set: composed of Search for Opportunities and Initiatives (BOI); Calculated Risk-taking (CRC); Demand for Quality and



Efficiency (EQE); Persistence (PER); Commitment (COM).

2) Planning Set: includes Search for Information (BDI); Establishing Goals (EDM); Systematic Planning and Monitoring (PMS).

3) Power Set: comprised of Persuasion and Networking (PRC); Independence and Self-confidence (IAC).

This model is currently used by the United Nations Development Program (UNDP), and by the Serviço de Apoio a Pequena Empresa [Support Service for Small Businesses] (SEBRAE) in Brazil, for entrepreneurial training programs like the Programa para Empresários e Futuros Empreendedores [Program for Entrepreneurs and Future Entrepreneurs] (EMPRETEC).

It should be noted that Lenzi (2008) developed his thesis with emphasis on the identification of an association between the Jungian psychological types and the entrepreneurial competencies recognized in individuals considered to be entrepreneurs. The sample consisted of a hundred and twenty-six subjects, in eleven large companies located in the state of Santa Catarina, Brazil. In this study, the entrepreneurial competencies that stood out were: calculated risk-taking, persistence, commitment, search for information and persuasion and networking. It was also found that there was a high degree of significance in the association of predominant psychological types with the entrepreneurial competencies identified by coworkers.

Before the study of Lenzi (2008), which served as a reference for this role, Morales (2004) also used the work of Cooley (1990, 1991), seeking to measure the relationship between Jungian psychological types and entrepreneurial skills. The research was conducted with eighty-two entrepreneurs in the state of Santa Catarina, Brazil. In this sample, the two dominant entrepreneurial competencies were search for information and persuasion and networking. There was low correlation between psychological types and the entrepreneurial competencies studied in the group researched.

Rosa and Lapoli (2010) studying entrepreneurial talents in the state of Santa Catarina, state that in certain contexts, some competencies are more meaningful for individual actions than others. They argue that "[...] to achieve high performance in a particular market, some competencies may be more important, but in general they must all be present if an entrepreneurial action is to generate the desired results [...]". (Rosa & Lapoli, 2010, p. 24).

Schmitz (2012) sought to identify the entrepreneurial competencies required by the management of Institutes of Higher Education. The research was conducted in three universities in Brazil and one in Portugal. The sample consisted of one hundred and thirty-four interviewees. The research results identified independence and self-confidence and the most significant entrepreneurial competencies. A summary of the cited studies is presented in Table 1.

Table 1 - Studies on entrepreneurial competencies.

| Author | Topic / Research | Results |
|----------------------|--|--|
| Morales (2004) | Relation between Jung's psychological types and entrepreneurial competencies | In their study found that competencies were dominant individual entrepreneurs |
| Lenzi (2008) | Identification and association of Jungian psychological types and entrepreneurial competencies | In their study found that competencies were most prominent in large size companies |
| Rosa e Lapoli (2010) | Talents entrepreneurs | In their study describing the relationship between the competencies and contexts of achievement for individual entrepreneurs |
| Schmitz (2012) | Identify the entrepreneurial competencies of university administrators | In their study found that competencies were more significant for university administrators |

Source: Adapted from the original articles



2.1 MATERIAL AND METHODS

The data for this study were obtained from professors, coordinators of undergraduate courses, at two private, community universities in the state of Santa Catarina, Brazil, via a survey, collecting data through a questionnaire. The first block of the questionnaire related to organizational factors, in accordance with the model of Moriano et al. (2009), and included five dimensions (AD, LT, Rc, TD and IT). The second block included, in accordance with the proposal of Lenzi (2008), eight entrepreneurial competencies, those of the achievement set (BOI, CRC, EQE, PER and COM) and those of the planning set (BDI, EDM and PMS). The third block focused on descriptive data of the respondents that were not used in this work.

The data collection tool was designed to evaluate the respondents' perceptions using a five-point Likert scale. For the organizational factors, thirty-five statements were developed; eight each for AD and LT, six each for RC and TD, and seven for IT. For each entrepreneurial competency, three statements were considered and their responses totaled.

The one hundred and twelve completed questionnaires were filled out by the coordinators, as the social subjects of the research. There were no missing data for the entrepreneurial competencies, and only seven among the organizational factors, which were filled out using the median of the other responses to fill out the missing response.

Multivariate methods were used to analyze the data – factor analysis, canonical analysis, and multiple regressions – using the SPSS and STATISTICA software programs. Factor analysis is a multivariate technique that was used in exploratory mode for the two blocks of the questionnaire, seeking to verify whether the data collected showed significant correlations between the indicators (answers) and the construct being measured (dimension of organizational factors). The premises for using it were previously verified in the Kaiser, Meyer, and Olkin (KMO) test to measure the overall adequacy of the sample and the Bartlett sphericity test. The minimum accepted commonality was 0.5 and the unidimensionality, according to the Kaiser criterion for factor retention, had to express an extracted variance greater than 50%.

After confirming unidimensionality for each organizational factor individually, a factor analysis was developed with all the indicators that had been retained in the earlier analyses. The premises were also verified, in this case, by the Bartlett and KMO tests. A restriction was set that the indicators must have a minimum correlation

with the factor that expresses it, or a factorial load equal to or higher than an absolute value of 0.55, and that normalized varimax rotation would be applied to the solution obtained to distribute the variance between the extracted factors more evenly.

With the variables referenced to the entrepreneurial competencies, the procedure entailed summing the scores of the three indicators of each one of them so as to create a database for processing by factor analysis. Verified the feasibility of their execution set the same minimum value for the factor loadings of 0.55 in absolute value. Normalized varimax rotation was also applied to the solution obtained.

Considering the interest in correlating the importance of the organizational factors with the entrepreneurial competencies, canonical analysis was used. The objective of this multivariate technique is to measure the linear relationship that may exist between two sets of variables quantified in the same observation units or individuals. As such, the coefficient of correlation between the linear combinations (canonical variables) that are generated for each set is calculated. Canonical variables are extracted seeking to maximize the correlation between the sets (Mingoti, 2005). As Hair et al. (2005) pointed out, the restrictions for performing a canonical analysis are less rigid than for other multivariate techniques, since the aim is to measure the association between the linear combinations of the two sets by the coefficient of correlation, without the assumptions that must be met by the variables in other analyses, such as those of multinormality and homoscedasticity.

In summary, the analysis involves finding the linear combinations of each set of variables, the canonical statistical functions, so that their correlation is a maximum. The number of canonical variables that can be generated is equal to the lowest number of variables in one of the groups, and each time a new pair is generated it is, by the restrictions imposed, orthogonal or independent from those already created. These linear combinations are also called canonical factors, and they express a part of the variability that exists in the other set, which is known as redundancy. Thus, in this research, redundancy of the competencies represents the amount of variance in these variables explained by the canonical function of the organizational factors.

In this study, canonical analysis was performed in five ways: 1) based on the factorial scores generated by the respondents from the factor analysis of the organizational factors with the factorial scores of the competencies; 2) based on the factorial scores of the organizational factors with the variables of the achievement set of



competencies (BOI, CRC, EQE, PER, and COM); 3) based on the factorial scores of the organizational factors with the variables of the planning set (BDI, EDM and PMS); 4) with the factorial scores of the organizational factors and the variables retained by factor 1 of the competencies (CRC, PER, BDI, and PMS); and 5) with the factorial scores of the organizational factors and the variables retained by factor 2 (BOI, EQE, COM, and EDM). Finally, multiple regressions were performed for each one of the eight competencies as dependent variables, and for the factorial scores of the five organizational factors as predictive variables.

3 RESULTS

Initially, an individual evaluation of the unidimensionality of the data obtained to measure the organizational factors was made through exploratory factor analysis, with the limitations detailed in the methodological procedures. Having verified this condition, a joint factor analysis of all dimensions was performed. Both the KMO test (0.728) and the Bartlett test ($p = 0.000$) show that the data are appropriate for the use of this analytical technique. The Kaiser criterion for correlation matrices, which only considers auto values higher than 1, was used for the extraction of significant factors. The results, following normalized varimax rotation, are shown in Table 2, which displays correlations higher than 0.55 between items and factors. The total variance extracted was 66.75%.

Table 2 – Factorial loads in the factor analysis of organizational factors. Principle component extraction and normalized varimax rotation. AD: management support; LT: freedom at work; Rc: rewards; TD: time available; IT: uncertainty about tasks.

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|---------------|---------------|---------------|----------------|---------------|
| AD1 | 0.8125 | * | * | * | * |
| AD2 | 0.7861 | * | * | * | * |
| AD3 | 0.7397 | * | * | * | * |
| AD4 | 0.6652 | * | * | * | * |
| LT4 | * | 0.7109 | * | * | * |
| LT6 | * | 0.6759 | * | * | * |
| LT7 | * | 0.7445 | * | * | * |
| LT8 | * | 0.8509 | * | * | 0.0789 |
| Rc2 | * | * | * | * | 0.6934 |
| Rc3 | * | * | * | * | 0.8599 |
| Rc4 | * | * | * | * | 0.7649 |
| Rc5 | * | * | * | * | 0.5738 |
| TD1 | * | * | * | -0.6507 | * |
| TD3 | * | * | * | 0.7271 | * |
| TD6 | * | * | * | 0.7251 | * |
| IT3 | * | * | 0.6769 | * | * |
| IT4 | * | * | 0.7831 | * | * |
| IT5 | * | * | 0.7045 | * | * |
| IT6 | * | * | 0.6019 | * | * |
| Expl.Var | 2.9296 | 2.5935 | 2.3052 | 2.3129 | 2.5417 |
| Prp.Totl | 0.1542 | 0.1365 | 0.1213 | 0.1217 | 0.1338 |

Source: Research data.



It can be seen that each latent variable expresses a dimension of the organizational factors considered in the study, and that the factorial scores generated represent the predominant linear combination of that factor. Therefore, it was possible to consider the factorial scores derived from each factor as representative of the dimension that is correlated with it. For example, the scores of the first factor represent the effect of management support (AD), and the same may be said of the others. Based on this reasoning, the factorial scores of the five extracted factors were generated and added to the database for subsequent use during the study.

Because the data collected to measure the entrepreneurial competencies of the undergraduate course coordinators included three answers for each one, a summative scale by competency was developed as proposed by Lenzi (2008). Thus, the database to be processed consisted of eight columns, the first five relating to the achievement set competencies, BOI, CRC, EQE, PER, and COM, and the other three to the planning set competencies, BDI, EDM, and PMS. The results of the KMO test (0.743) and the Bartlett test of sphericity ($p = 0.000$) confirmed that it was possible to perform factor analysis.

The results obtained using the Kaiser criterion to determine the number of factors that have significance showed two auto values higher than 1, accounting for 62.98% of the variance in the data. The matrix of factorial loads generated by varimax rotation is displayed in Table 3. From its analysis, it follows that the sets of entrepreneurial competencies are not represented by factors independent of each other, but rather, competencies from both sets are shared in both factors. Two competencies from each set are seen in factor 1: calculated risk-taking (CRC) and persistence (PER) from the achievement set, and search for information (BDI) and systematic planning and monitoring (PMS) from the planning set. Factor 2 has three competencies from the achievement set and one from planning: search for opportunities and initiatives (BOI), demanding quality and efficiency (EQE), and commitment (COM) are grouped together with establishing goals (EDM). The factorial scores for all of the undergraduate coordinators participating in the study were obtained and saved in the database for use in subsequent analyses.

Table 3 – Factorial loads in the factor analysis of organizational factors. Principle component extraction and normalized varimax rotation. BOI: search for opportunism and initiatives; CRC: calculated risk-taking; EQE: demanding quality and efficiency; PER: persistence; COM: commitment; BDI: search for information; EDM: establishing goals; PMS: systematic planning and monitoring.

| | Factor 1 | Factor 2 |
|----------|---------------|---------------|
| BOI | * | 0.8016 |
| CRC | 0.8173 | * |
| EQE | * | 0.8332 |
| PER | 0.8803 | * |
| COM | * | 0.7663 |
| BDI | 0.8667 | * |
| EDM | * | 0.5931 |
| PMS | 0.6823 | * |
| Expl.Var | 2.6798 | 2.3580 |
| Prp.Totl | 0.3350 | 0.2948 |

Source: Research data.

With the database of factorial scores created, a canonical analysis was performed in order to evaluate the relationship that one would expect to find between the organizational factors

and the competencies. The maximum number of canonical functions in this case can only be two, as it is equal to the lowest number of variables in any of the groups. The variables used in the analysis,



that is, the factorial scores, having been derived from different factors, are consequently independent of each other. This condition is

important in the evaluation of statistic canonical variables; the results are shown in Table 4.

Table 4 – Results of canonical analysis between organizational factors and entrepreneurial competencies expressed by the factorial scores derived from the factor analyses performed.

| Canonical Function | Canonical Correlation | Canonical R ² | χ^2 | p-value |
|--------------------|-----------------------|--------------------------|----------|----------|
| 1 | 0.479596 | 0.230013 | 33.78979 | 0.000202 |
| 2 | 0.230125 | 0.052958 | 5.82202 | 0.212868 |

Source: Research data.

Only the first function is expressive, as shown by the significances of the results by probability or p-value. In addition, the multivariate tests were significant, as shown in Table 5.

Table 5 – Multivariate tests of the significance of canonical analysis. For the Wilks' λ the F value is exact.

| Test Name | Value | Approx. F | p-value |
|-----------|--------|-----------|---------|
| Pillai | 0.283 | 3.494 | 0.000 |
| Hotelling | 0.3546 | 3.688 | 0.000 |
| Wilks | 0.7292 | 3.592 | 0.000 |

Source: Research data

When performing the analysis, it is important to take into account the canonical correlation as well as the redundancy index, since this is equivalent to the coefficient of determination in a multiple regression. Table 4 shows the

canonical correlations for the two functions and Table 6 displays the redundancy index for the first function, which is equal to the product of the average canonical load multiplied by the canonical correlation of the function squared.



Table 6 – Value of the redundancy index for the first canonical statistical variable. The variables are the competency scores retained for each factor, in accordance with Table 3.

| Variable | Canonical Loading | Canonical Loading-sqr | Average canonical load | Canonical R ² | Redundancy |
|----------|-------------------|-----------------------|------------------------|--------------------------|------------|
| sCF1 | -0.42774 | 0.18297 | | | |
| sCF2 | -0.9039 | 0.81703 | | | |
| | | 1 | 0.5 | 0.230013 | 0.1150036 |

Source: Research data.

The redundancy index for the second function is 0.02648, which implies global redundancy, expressed as a percentage, of 14.1485%. This shows that the organizational factors have a positive association and significant association (Table 4) with the competencies, but expressed at a low percentage.

Given these results, the study carried out a canonical analysis between the scores of the organizational factors and the entrepreneurial competencies, calculated by their summative value. The first processing was to perform an analysis between the factorial scores of the organizational factors and the competencies of the achievement set. The results obtained indicate that only the first two canonical functions have statistical significance, with canonical correlations of 0.5084 ($p = 0.000$) and 0.3982 ($p = 0.028$), respectively.

Redundancy however remains low, reaching 13.14% for the five functions.

In the second processing a canonical analysis of the factorial scores of the organizational factors with the competencies of the planning set was done. In this circumstance, only the first canonical function has significance ($p = 0.000$), with a canonical correlation value of 0.4762. The percentage of total redundancy only reaches 11.75%.

Taking into account that the factors extracted in the factor analysis had competencies with high loads in both the sets (see Table 3), two more canonical analyses were performed in which

the factorial scores of the organizational factors were crossed with the competencies that had been correlated with factor 1 (CRC, PER, BDI, and PMS) and with factor 2 (BOI, EQE, COM, and EDM). In the first analysis of the first two canonical functions there are correlations significant to 5%, with values of 0.4310 and 0.3886, but the total redundancy was the lowest of all, reaching only 9.17%. In the second analysis, the first two canonical functions also had significant correlations, with values of 0.4829 and 0.3971. It is in this analysis that the highest total redundancy was obtained, reaching 16.07%.

The results obtained have shown that there is a relationship between the organizational factors of higher learning institutions, and the entrepreneurial competencies of the coordinators of undergraduate courses. However, from the analyses performed, it is not possible to clearly determine which competencies are the most important to promote, or which organizational factors are the most suitable for this purpose. Seeking to respond to this question, and have a more effective approach for decision-making, a multiple regression analysis was performed in which the predictors were the organizational factor scores, which are standardized by construction and independent from each other, and each dependent variable was one of the competencies. The results are shown in Table 7, where p-values less than 0.05 and the adjusted coefficients of determination are shown.



Table 7 – Multiple regressions for competencies predicted by factorial scores of the organizational factors. P values smaller than the significance level.

| | AD | LT | IT | TD | Rc | Ajusted R ² |
|-----|--------|--------|--------|--------|----|------------------------|
| BOI | 0.0399 | 0.0135 | 0.0338 | 0.0149 | * | 0.1289 |
| CRC | * | 0.0072 | * | * | * | 0.0801 |
| EQE | 0.0164 | 0.0005 | * | * | * | 0.1390 |
| PER | * | * | 0.0153 | * | * | 0.0301 |
| COM | 0.0312 | * | * | 0.0134 | * | 0.074 |
| BDI | * | * | * | * | * | * |
| EDM | * | 0.0023 | 0.0026 | * | * | 0.1426 |
| PMS | * | * | 0.0297 | * | * | 0.0684 |

Source: Research data.

Because the predictors are independent of each other, the lack of significance cannot be attributed to multicollinearity, but rather to the fact that a specific organizational factor does not influence the manifestation of the competency that is being considered in the regression. Taking this into account, the first thing to highlight is that rewards (Rc) does not show significance for any of the competencies considered. This may be a consequence of the respondents being coordinators of undergraduate courses, for whom there are no monetary rewards equivalent to those received by the coordinators of graduate courses *lato sensu*

4 FINAL CONSIDERATIONS

The analysis of the data obtained from the coordinators of undergraduate courses of two private community universities confirms the research hypothesis, showing that the organizational factors are positively related to the entrepreneurial achievement and planning competencies studied here. However, a more detailed analysis shows that they do not all have the same impact.

The greatest recurrence in the regression analyses occurred with organizational limitations, or uncertainty about tasks, and freedom at work, which is a sign of the importance of clarity of rules and decisions, which should be articulated at the level of performance expected of the coordinators, and the freedom that they must feel at work. At the other end of the spectrum, a factor with no influence over any of the competencies at the level of significance adopted (5%) was the use of rewards, in contrast to when the interviewees were coordinators of graduate courses *lato sensu* (Lizote & Verdinelli, wp).

when they form a class. On the other hand, the entrepreneurial competency, search for information (BDI), has no organizational factor at the 5% significance level to promote it.

Of all the organizational factors, the most recurrent are freedom at work (LT) and uncertainty about tasks (IT), also called organizational limitations. They influence four of the entrepreneurial competencies considered and, together, influence BOI, search for opportunities and initiatives, which is also related to management support (AD) and time available (TD).

Search for opportunities and initiatives are the entrepreneurial competency for which the undergraduate coordinators must feel maximum support from the upper management of the organization. Except for rewards, which have no influence, the four factors considered are shown to be significant.

Demand for quality and efficiency implies that coordinators require the dedication of the professors as much as of the students. Since some actions sometimes cause reactions, the relationship between this competency and management support is understandable: the coordinator must feel the backing of his/her superiors.

The two competencies of the planning set that relate to organizational factors, establishing goals and systematic planning and monitoring, are influenced by tasks. This means that for coordinators to develop or display these competencies, the extent of the organizational limitations, which Moriano et al. (2009) call uncertainty in tasks, must be clear.

As this is an initial study, part of a broader study in development, new approaches may offer new insights on the question by considering aspects that were not addressed in the study, such as:



segregation by knowledge area, public versus private systems of higher learning, the employability index of the graduates, the reputation in the job market of the institution being analyzed, among others.

REFERENCES

- Birley, S.; Muzyka, D. F. (2001). *Dominando os desafios do empreendedor*. São Paulo: Makron Books.
- Cooley, L. (1990). *Entrepreneurship training and the strengthening of entrepreneurial performance*. Washington: USAID. Final Report.
- Cooley, L. (1991). *Seminário para fundadores de empresa: Manual del capacitador*. Washington: MSI.
- Covin, J.; Slevin, D. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16 (1), 7-25.
- Cozzi, A. O.; Arruda, C. (2004). Desenvolvendo a capacidade empreendedora de uma organização. *Proceedings of the Encontro de Estudos Organizacionais – EnEO*, 3, Brasil, 1-14.
- D’Este, P., Mahdi, S.; Neely, A.; Rentocchini, F. (2012). Inventors and entrepreneurs in academia: What types of skills and experience matter? *Technovation*, 32, 293–303.
- Daft, R. L. (2002). *Organizações: teoria e projetos*. São Paulo: Pioneira.
- Dornelas, J. C. A. (2003). *Empreendedorismo corporativo: Como ser empreendedor, inovar e se diferenciar em organizações estabelecidas*. Rio de Janeiro: Elsevier.
- Hair Jr., J. F.; Anderson, R. E.; Tatham, R. L.; Black, W. C. (2005). *Análise multivariada de dados*. Porto Alegre: Bookman.
- Hashimoto, M. (2006). *Espírito empreendedor nas organizações: Aumentando a competitividade através do intra-empreendedorismo*. São Paulo: Saraiva.
- Hernández, J. M. da C.; Caldas, P. M. (2001). Resistência à mudança: Uma revisão crítica. *Revista de Administração de Empresas*, São Paulo, 41 (2), 31- 45.
- Hisrich, R. D.; Peters, M. P. (2004). *Empreendedorismo*. Porto Alegre: Bookman.
- Hornsby, J. S.; Kuratko, D. F.; Zahra, S. A. (2002). Middle manager's perception of the internal environment for corporate entrepreneur-ship: assessing a measurement scale. *Journal of Business Venturing*, 17 (1), 253-273.
- Kuratko, D. F.; Hodgetts, R. M. (1995). *Entrepreneurship: a contemporary approach*. 3. ed, Fort Worth: Dryden Press.
- Kuratko, D. F.; Hornsby, J. B.; Bishop, J. W. (2005). Managers’ corporate entrepreneurial actions and job satisfaction. *International and Entrepreneurship Journal*, 1, 275-291.
- Kuratko, D. F.; Hornsby, J. S.; Naffziger, D. W.; Montagno, R. V. (1993). Implement entrepreneurial thinking in established organizations. *SAM Advanced Management Journal*, 58 (1), 28-39.
- Kuratko, D. F.; Montagno, R. V.; Hornsby, J. S. (1990). Developing an Intrapreneurial assessment instrument for effective corporate entrepreneurial environment. *Strategic Management Journal*, 11, 49-58.
- Lenzi, F. C. (2008). *Os empreendedores corporativos nas empresas de grande porte: um estudo da associação entre tipos psicológicos e competências empreendedoras*. Tese de doutoramento não-publicada, Faculdade de Economia, Administração e Contabilidade da Universidade de São Paulo, São Paulo, Brasil.
- Lizote, S. A.; Verdinelli, M. A. *Relações entre fatores organizacionais e competências empreendedoras: Um estudo com coordenadores de cursos de pós-graduação*. Itajaí, SC, Brasil. (Working Paper).
- Marvel, M. R.; Griffin, A.; Hebda, J.; Vojak, B. (2007). Examining the technical corporate entrepreneurs’ motivation: Voices from the field. *Entrepreneurship Theory and Practice*, 31 (5), 753-768.



Mello, S. C. B. de; Leão, A. L. M. de S.; Paiva Jr., F. G. de. (2006). Competências empreendedoras de dirigentes de empresas brasileiras de médio e grande porte que atuam em serviços da nova economia. *Revista de Administração Contemporânea*, 10 (4), 47-69.

Mingoti, S. A. (2005). *Análise de dados através de métodos de estatística multivariada: Uma abordagem aplicada*. Belo Horizonte: Ed. UFMG.

Morales, S. A. (2004). *Relação entre competências e tipos psicológicos junguianos nos empreendedores*. Tese de doutoramento não-publicada, Centro Tecnológico, Universidade Federal de Santa Catarina, Florianópolis.

Moriano, J. A.; Topa, G.; Valeor, E.; Lévy, J. P. (2009). Identificación organizacional y conducta “intraempreendedora”. *Anales de Psicología*, Murcia (Espanha), 25 (2), 277-287.

Rosa, S. B.; Lapolli, E. M. (2010). Santa Catarina: um estado que é uma vitrine de talentos. In Lapolli, E. M.; Franzani, A. M. B.; Souza, V. A B. (Orgs). *Vitrine de talentos: Notáveis empreendedores em Santa Catarina*. (pp.13-37). Florianópolis: Pandion.

Schmitz, A. L. F. (2012). *Competências empreendedoras: Os desafios dos gestores de instituições de ensino superior como agentes de mudanças*. Tese de doutoramento não-publicada, Centro Tecnológico, Universidade Federal de Santa Catarina, Florianópolis, Brasil.

Stevenson, H. H.; Jarillo, J. C. (1990). Paradigman of entrepreneurship: entrepreneurial management. *Strategic Management Journal*, 11, 17-27. (Special Issue).

Zahra, S. A.; Garvis, D. M. (2000). International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of Business Venturing*, 15, 469-492.

Zahra, S. A.; Neubaum, D. O.; El-Hagrassey, G. M. (2002). Competitive analysis and new venture performance: Understanding the impact of strategic uncertainty and venture origin. *Entrepreneurship Theory and Practice*, 27(1), 1-28.

